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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,155	09/21/2006	Gorm Sorensen	41081	1684
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EXAMINER DEFRANK, JOSEPH S				
ART UNIT		PAPER NUMBER		
3724				
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11/19/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/598,155

**Applicant(s)**

SORENSEN ET AL.

**Examiner**

JOSEPH DEFRANK

**Art Unit**

3724

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 35-72 is/are pending in the application.
- 4a) Of the above claim(s) 40, 48, 61 and 69 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 35-39, 41-47, 49-60, 62-68 and 70-72 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 8/29/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of group IA in the reply filed on 10/10/08 is acknowledged. The traversal with respect to the restriction requirement between groups I and II is on the ground(s) that two way distinction does not exist between the method group (group I) and the apparatus group (group II) as both groups have the conveying means and the abutting feature. This argument is persuasive and the requirement for restriction between groups I and II is withdrawn.
2. Applicant's election with traverse of group IA in the reply filed on 10/10/08 is acknowledged. The traversal with respect to the election of species is on the ground(s) that no "serious burden" to examine both species present. This is not found persuasive because two completely different methods of calculating the size of an incoming piece of food product are presented. Each method of calculation requires a unique search and thus presents a burden.

The requirement is still deemed proper and is therefore made FINAL.

3. Examiner acknowledges that claims 36-38, 41-46, 49-55, 57-60, 62-67, and 70-72 were not addressed with respect to the election of species. These claims were deemed generic with respect to both species present and will be examined.
4. Claims 40, 48, 61, and 69 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/10/08.

***Priority***

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Drawings***

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: A, 100B, 102B, 103B, 122. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "102B" and "103B" have both been used to designate an unspecified face of the food product in figure 3 (both 102B and 103B were not defined in the specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

8. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the transition marker between items (claim 54), and the measuring means including a light emitter and detector (as described by claims 43-47, 49, and 64-68) with at least one line of light oriented parallel to the transport direction and one line of light oriented across the conveyor must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 45 and 66 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how it is possible to have the sensors emit light which is substantially parallel to the transporting direction of the items when the items are substantially abutting.

***Claim Objections***

11. Claims 50 and 5 (51? See below) are objected to because of the following informalities: the phrase "the abutting items" lacks antecedent basis as stated. This can be cleared up by changing to the phrase "the substantially abutting items". Appropriate correction is required.

12. Applicant presents claim "5" after claim "50" when claims 1-34 have been canceled. Examiner believes this to be a typo and will read this as claim "51".

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 35-39, 41, 42, 50-52, 55-60, 62, 63, 70, and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Whitehouse (WO 99/47885).

15. With respect to claims 35 and 56, Whitehouse discloses both a method and apparatus for cutting food items into proportions of predetermined size comprising placing the items on a conveying means (10); transporting the items to a measuring means (36, 38, 40, 42); transporting the items from the measuring means to a cutting means (80); measuring at least one characteristic (shape or size) of each item with the measuring means; sectioning the items by the cutting means (see figures 3A and 3B); controlling and regulating (through control means 48) at least one cutting process parameter in order to achieve predetermined product portions from the items based on the at least one measured item characteristic (see page 7 lines 2-5); wherein said items are placed consecutively and substantially abutting each other on said conveying means (see figures 3A and 3B).

16. With respect to claims 36 and 57, Whitehouse discloses the controlling step includes an item boundary detection step (the item is scanned from front to back in

terms of distance and then when there is no item present, the boundary is scanned), such that a point of transition (when no food is detected) between consecutive items on the conveyor means is based on at least one measured item characteristic (the size of the item).

17. With respect to claims 37 and 58, Whitehouse discloses the method and apparatus wherein the item boundary detection step includes the steps of: receiving successive item data sets from the at least one measured item characteristic; and analyzing the received data for identifying the boundaries between the consecutively abutting items (see page 3 lines 17-21).

18. With respect to claims 38 and 59, Whitehouse discloses the method and apparatus wherein the item boundary detection step includes the steps of: receiving successive item data sets from the at least one measured item characteristic; calculating summary differences between two successive data sets, said summary differences being the sum of the differences between a first of the successive data sets and a second of the successive data sets (see second to last full paragraph on page 6); and identifying any of the summary differences that exceed a predetermined threshold (when zero product is detected), said identified summary differences representing a location of one point of the transition between two items (see last full paragraph of page 6).

19. With respect to claims 39 and 60, Whitehouse discloses the method and apparatus wherein the controlling step utilizes the summary difference between two data sets, the summary difference being obtained from distance data from a plurality of



sensors in the measuring means according to:  $\Sigma\Delta = |\Delta 1| + |\Delta 2| + \dots + |\Delta n|$  where  $\Sigma\Delta$  is the summary difference,  $\Delta 1$  is the difference between a first distance data and a successive second distance data from the first sensor in the measuring means, and  $n$  is the number of sensors. Although not explicitly stated in equation form, the sensors of Whitehouse measure distance from the product surface to the sensor at various successive points along the length of the food item. The successive points from each sensor are compared to create a volume distribution along the length of the item. The volume distribution can then be utilized with the density of the food product to create slices of equal volume or weight. Please see pages 6 and 7 of Whitehouse.

20. With respect to claims 41, 42, 62, and 63, Whitehouse discloses the measuring means being a ring scanner (mounted on ring 32) which measures surface dimensions of the passing food product.

21. With respect to claim 50, Whitehouse discloses the method wherein the items are aligned with the longitudinal direction of the substantially abutting items (see figures 3A and 3B).

22. With respect to claim 51, Whitehouse discloses the method wherein the items are mutually displaced relative to the longitudinal direction of the substantially abutting items.

23. With respect to claims 52 and 70, Whitehouse discloses that the conveyor can be dish shaped to form a trough (two angled side walls, which provides a V-shaped conveyor) when used to handle softer, more malleable foods (see page 2 lines 12-13).

As further evidenced by Ketels (US 5,702,295) or Koyama (JP 359151007A), this is a widely used technique for transporting food items (see figure 1).

24. With respect to claim 71, Whitehouse discloses the apparatus including weighing means for weighing the items. Although a physical scale is not included in the apparatus, the central computer can compute the weight of the log of food product by taking the volume (calculated from measuring means) of the product and multiplying it by the mean density value to calculate the weight of the food item. See page 6 bottom three lines through the first five lines of page 7.

25. With respect to claim 55, Whitehouse discloses the measuring means including means for detecting a texture and identifying changes therein. The measuring device of Whitehouse determines the surface contour of the item (distance between the sensor and the product surface along various points). This contour can be considered a texture of the product as bumps and flat surfaces will be detected.

***Claim Rejections - 35 USC § 103***

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

28. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

29. Claims 43, 44, 46, 47, 49, and 64, 65, 67, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehouse in view of Van Devanter et al. (US 4,557,019; hereafter Van Devanter).

30. With respect to claims 43, 44, 64, and 65, Whitehouse discloses the sensors comprising laser displacement transducers (36-42). Whitehouse does not disclose the scanning device wherein at least one light source is arranged to emit at least one line of light towards the items being scanned and the reflected light is detected by a sensor means arranged at an acute angle of about 30 degrees between the emitted and the reflected light beams. Examiner notes that there are many different ways of detecting the presence and contour of an object. Various forms of sensors accomplish this task.

Van Devanter discloses a method (and apparatus) for sizing fish filets prior to being cut. The sizing mechanism utilizes a light generator (34) to cast light onto the

filets and a camera (38) to analyze the angles of the incoming reflected light to determine the contour of the filet (see column 3 lines 1-38). Examiner notes that to accomplish this task, the camera is placed at an acute angle of approximately 30 degrees (see figure 2A) with respect to the emitted and reflected beams of light. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute the laser transducer of Whitehouse with the light emitter and receiver combination of Van Devanter in order to measure the contour of the food items. Both setups are used to calculate a distance from the sensor to the item in order to determine an estimate of the cross section (or contour) of the item to be cut. This is an example of a simple substitution of one known element for another to obtain the predictable result of measuring distance.

31. With respect to claims 46 and 67, the modified apparatus and method of Whitehouse discloses the emitted light being oriented across the conveyor.

32. With respect to claims 47 and 68, Whitehouse discloses Whitehouse discloses the method and apparatus wherein the controlling step utilizes the summary difference between two data sets, the summary difference being obtained from distance data from a plurality of sensors in the measuring means according to:  $\Sigma\Delta = |\Delta 1| + |\Delta 2| + \dots + |\Delta n|$  where  $\Sigma\Delta$  is the summary difference,  $\Delta 1$  is the difference between a first distance data and a successive second distance data from the first sensor in the measuring means, and  $n$  is the number of sensors. Although not explicitly stated in equation form, the sensors of Whitehouse measure distance from the product surface to the sensor at various successive points along the length of the food item. The successive points from

each sensor are compared to create a volume distribution along the length of the item.

The volume distribution can then be utilized with the density of the food product to create slices of equal volume or weight. Please see pages 6 and 7 of Whitehouse.

33. With respect to claim 49, White house discloses the measured characteristic being the height of the items (the cross section is taken which includes the height).

34. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehouse in view of Antonissen (US 4,572,044).

Whitehouse does not disclose the step of weighing the item before the measuring occurs. Whitehouse discloses calculating the weight based on the measured dimensions of the items. Antonissen discloses a method and apparatus for slicing food product in which the food product is weighed before it is measured (column 2 lines 44-51) in order to achieve a product density which is used to create slices of equal weight. Examiner notes that this concept is taught by the art of Whitehouse (See page 6 bottom three lines through the first five lines of page 7) but no scale is provided. Providing the scale, as taught by Antonissen, allows the computer to calculate the density, as opposed to having the user input it into the system. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a scale to the art of Whitehouse in order to allow the computer to calculate the density of the product (prior to slicing) to create slices of equal weight in view of the teachings of Antonissen.

35. Claims 54 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehouse.

Whitehouse does not disclose inserting a transition marker between separate items. Examiner notes that providing a spacing device (such as an inserted tab) between consecutive items on a conveyor belt is well known. This is even practiced at the grocery store where two customers have their orders on the same conveyor (which leads to the cashier) and a plastic bar is inserted between the orders. The plastic bar signals the end of one user's items and the beginning of the next user's items. Examiner takes official notice that it is old and well known to place separator markers between successive items on a conveyor system to signal the transition between items. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide transition markers between the food items on the conveyor means of Whitehouse in order to physically separate individual items and signal the end of one item and the beginning of another.

36. Claims 45 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitehouse in view of Van Devanter as applied to claim 43 above, and further in view of Antonissen et al. (US 5,267,168; hereafter Antonissen).

The modified apparatus of Whitehouse does not disclose the emitted at least one light line being oriented parallel to the transporting direction of the items. The emitted light crosses the conveying path. Examiner notes that orienting the emitted light and camera setup towards the front face of a piece of food product to be sliced is well known. This type of setup will also scan the cross section of the product. Antonissen discloses such a setup having a light emitter (7) and a camera (6) disposed parallel to the transportation direction. All the claimed elements were known in the prior art and

one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. In this case, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to orient the light emitter and camera to face the direction of travel of the food product to analyze the face of the product instead of the circumference of the product in view of the teachings of Antonissen. No new and unexpected result occurs from the rearrangement of the parts.

#### ***Conclusion***

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art of Sandberg et al., Carey, Burch et al., Cresson et al., Wygal et al., and Rudy et al. are noted as considered pertinent to the applicant's disclosure.

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH DEFRANK whose telephone number is (571)270-3512. The examiner can normally be reached on Monday - Thursday; 9am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Joseph De Frank  
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